## Overview

<table>
<thead>
<tr>
<th>Product name</th>
<th>MTT Assay Kit (Cell Proliferation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection method</td>
<td>Colorimetric</td>
</tr>
<tr>
<td>Sample type</td>
<td>Adherent cells, Suspension cells</td>
</tr>
<tr>
<td>Assay type</td>
<td>Quantitative</td>
</tr>
<tr>
<td>Assay time</td>
<td>3h 15m</td>
</tr>
<tr>
<td>Species reactivity</td>
<td>Reacts with: Other species, Mammals</td>
</tr>
<tr>
<td>Product overview</td>
<td>MTT Assay Kit ab211091 provides an easy-to-use, non-radioactive, and high-throughput method for measuring cell proliferation, cell viability and cytotoxicity.</td>
</tr>
</tbody>
</table>

The MTT assay protocol is based on the conversion of water soluble MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) compound to an insoluble formazan product.

Viable cells with active metabolism convert MTT into formazan. Dead cells, on the other hand, lose this ability and therefore show no signal. Thus color formation serves as a useful and convenient marker of only the viable cells. The measured absorbance at OD 590 nm is proportional to the number of viable cells.

MTT assay protocol summary:
- replace serum-containing media with serum-free media and MTT reagent in cell cultures
- incubate for 3 hr at 37°C
- add MTT solvent and incubate for 15 min
- analyze with microplate reader

### Notes

Review our cell health assay guide to learn about our kits to perform a cell viability assay, cytotoxicity assay or cell proliferation assay. An alternative product, MTS assay kit ab197010, uses a similar principle to this kit, but without the need for the MTT solvent step.

### How other researchers have used MTT Assay Kit ab211091

This MTT assay kit has been used in publications with a variety of cell types, including:
- HUVEC cells\(^1\), U2OS cells and Saos2 cells\(^2\), human PBMCs\(^3\), rat primary hepatic stellate cells\(^4\), DBTRG glioblastoma cells\(^5\), SKOV3 human ovarian cancer cells\(^6\), mouse vascular smooth muscle cells\(^7\), human iPSC-derived neuronal cultures\(^8\), primary bladder cancer cells\(^9\)

## Platform
Microplate reader

## Properties

### Storage instructions
Store at -20°C. Please refer to protocols.

<table>
<thead>
<tr>
<th>Components</th>
<th>1000 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTT Reagent</td>
<td>1 x 50ml</td>
</tr>
<tr>
<td>MTT Solvent</td>
<td>1 x 150ml</td>
</tr>
</tbody>
</table>

### Relevance
Cell proliferation is the multiplication or reproduction of cells, as a result of cell growth and cell division, resulting in the expansion of a cell population.

## Images

**MTT assay kit ab211091** was used by an Abcam customer (see product review) to assess the cell viability of myeloma cells which have acquired resistance to bortezomib (a proteasome inhibitor used as a cancer therapeutic).

Cells previously treated with 10 nM bortezomib for 1.5 months (RPMI8226-Bortezomib) had significantly improved viability, compared to the parental untreated cell line, when treated for 72 hours with varying concentrations of bortezomib.

HeLa cells were grown in DMEM media supplemented with 10% FBS, harvested using trypsin and counted using Trypan blue and a hemocytometer. Cells were then serially diluted in a clear cell culture plate and incubated for 3 hours with MTT Reagent at 37°C. After incubation, cells were treated with MTT Solvent for 15 minutes at room temperature. Absorbance was measured at OD = 590 nm. Inset graph is an expanded segment of the assay data at lower cell number per well.

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